**UNITED STATES DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB2000-0262-RI

January 5, 2001

Mr. Fred P. Patron
Senior Transportation Planning Engineer
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, OR 97301

Re: Reinitiation of Section 7 Consultation and Essential Fish Habitat Consultation for Little Sheep Creek Bridges Repair, Wallowa County, Oregon

Dear Mr. Patron:

On June 26, 2000, the National Marine Fisheries Service (NMFS) received a Biological Assessment (BA) and request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 informal consultation for two bridge repair projects on Highway 350, also known as Little Sheep Creek Road, in Wallowa County, Oregon. Concurrence with the finding of not likely to adversely affect listed Snake River spring/summer chinook salmon and Snake River steelhead was issued by the Boise office of NMFS on August 8, 2000. Subsequently, additional information about the project construction schedule indicated the potential to adversely affect listed species and critical habitat, and consultation was re-initiated. The request for formal consultation, and a supplemental BA, was received on October 26, 2000.

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act that addresses the proposed Little Sheep Creek Bridges repair in Wallowa County, Oregon. The NMFS concludes in this Opinion that the proposed action is not likely to jeopardize the subject species or destroy, or adversely modify, critical habitat. This Opinion includes reasonable and prudent measures with terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

In addition, this document also serves as consultation on Essential Fish Habitat (EFH) under Public Law 104-267, the Sustainable Fisheries Act of 1996, as it amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Stevens Act). An EFH analysis is required for Snake River spring/summer chinook salmon (*Oncorhynchus tshawytscha*).

Questions regarding this letter or attached Opinion should be directed to Pat Oman of my staff in the Oregon State Branch Office at 503.231.2313.

Sincerely,

Michael R Coure

for

Donna Darm
Acting Regional Administrator

cc: Rose Owens - ODOT (w/o attachment)
Melinda Trask - ODOT
Julie Bunnell - ODOT
Art Martin - ODFW
Chuck Howe - ODOT
Ken Eddy - ODOT (w/o attachment)
Tony George - ODOT (w/o attachment)

# Endangered Species Act - Section 7 Consultation
# &
# Magnuson - Stevens Act
# Essential Fish Habitat Consultation

# BIOLOGICAL OPINION

Little Sheep Creek Bridges
Wallowa County, Oregon

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: January 5, 2001

**Refer to:** OSB2000-0262-RI

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## 1. BACKGROUND

On June 26, 2000, the National Marine Fisheries Service (NMFS) received a Biological Assessment (BA) and request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 informal consultation for two bridge repair projects on Highway 350, also known as Little Sheep Creek Road, in Wallowa County, Oregon. Concurrence with the finding of not likely to adversely affect listed Snake River spring/summer chinook salmon and Snake River steelhead was issued by the Boise office of NMFS on August 8, 2000. Subsequently, additional information about the project construction schedule indicated the potential to adversely affect listed species and critical habitat, and consultation was re-initiated. The request for formal consultation, and a supplemental BA, was received on October 26, 2000. The FHWA is funding the proposed repairs, and is the lead agency for the project. Oregon Department of Transportation (ODOT) has designed the project and will administer the construction contract. This biological opinion (Opinion) is based on the information presented in the BA and the result of the consultation process.

The FHWA/ODOT has determined that Snake River steelhead (*Oncorhynchus mykiss*) and Snake River spring/summer chinook (*Oncorhynchus tshawytscha)* may occur within the project area. The Snake River steelhead were listed as threatened on August 18, 1997 (62 FR43937) and Snake River spring/summer chinook salmon were listed as threatened on April 22, 1992 (57 FR 14653). Protective regulations for Snake River steelhead and Snake River spring/summer chinook were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423). The proposed project is within critical habitat for Snake River spring/summer chinook, designated on December 28, 1993 (58 FR 68543), and that of Snake River steelhead, designated on February 16, 2000 (65 FR 7764).

The FWHA/ODOT is proposing to replace two structurally deficient bridges that span Little Sheep Creek on Highway 350 in northeastern Wallowa County, Oregon. The bridges are located at mile points 13.6 and 14.3 of Little Sheep Creek, a tributary of Big Sheep Creek, which flows into the Imnaha River. The project area includes the roadway approaches to the bridges and the roadway between the two bridges, so the entire project is located from mile point 13.4 to mile point 14.5. Work will begin in July of 2001 and is expected to be completed in October of 2001.

The effects determination was made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The FWHA/ ODOT determined that the proposed action was likely to adversely affect Snake River steelhead and Snake River spring/summer chinook.

This Opinion reflects the results of the consultation process. The consultation process involved a site visit on September 26, 2000, meetings in the summer and fall of 2000, and correspondence and communications to obtain additional information and clarify the BA and the October 26, 2000 addendum to the BA.

The objective of this Opinion is to determine whether the actions to repair the Little Sheep Creek highway bridges in Wallowa County are likely to jeopardize the continued existence of Snake River

steelhead and Snake River spring/summer chinook, or destroy or adversely modify these species' critical habitat.

## 2. PROPOSED ACTION

The proposed project will replace two single span timber structures with new single span concrete bridges. The new bridges will be constructed on the same alignment as the existing bridges, to minimize disturbance to the natural environment. The new bridges will feature spill-through abutments which mimic natural streambank geometry, and longer spans. The longer spans, in addition to the restored floodway, will allow for low flow meander. The existing vertical creosote-treated timbers and concrete abutments will be removed, and replacement abutments will be constructed primarily above the two-year floodplain as a result of using longer bridge spans. The abutments will be sloped at 1:1.5, improving stream channel flows during high water. The dimensions of the existing bridges are approximately 27 feet wide and 24 feet long. The new bridges will be 32 feet wide, 36 feet long and constructed of pre-cast, pre-stressed concrete slabs.

The bridges and roadway approaches will be widened to provide space for the standard guardrail. For both bridges, the roadway approaches at both ends will flare from the existing width of 21 feet to 32 feet for the new bridge, for a length of approximately 157 feet. The new approach roadway will be constructed using 8.8-inch of aggregate base and two 1.9-inch lifts of asphalt concrete pavement. ODOT Standard 'Type 3' guardrails will be installed along both sides of the road. The total addition to impervious surface for both bridges and the widened approaches is approximately 800 cubic yards, most of which is for the flared roadway approaches.

Existing bridge design allows surface runoff to drain directly into the creek. The new bridges will have ODOT's Standard 'Type F' rails which will extend onto the end panels, and will direct runoff into roadside ditches. The scour report prepared by the ODOT Hydraulics Section indicates that rip rap will be required to protect the bridge abutments from potential scour problems. Approximately 146 cubic yards of rip rap will be used. The net increase in rip rap for both bridges is 137 cubic yards. Most of this rip rap will be located well above the two-year floodplain and is replacing existing structures and the wood and metal shoring materials. The amount of rip rap that has been designed is necessary for bridge stability and to produce 1:1.5 sloped abutments. Rip rap is the current Federal Highway Administration standard for scour protection around bridge abutments. Because of the tight proximity of the water course and highway, the structural habitat diversity within the channel, and the rocky nature of the valley; bioengineering options were evaluated and determined infeasible and only marginally beneficial. However, mitigation for slope stability through vegetative plantings have been incorporated into the design to offset impacts.

At each bridge, the new concrete pilecaps will be overbuilt for placement of temporary slabs to provide for the single-lane detour during project construction. Stage I construction will occur on 1/3 of the bridge, adjacent to the detour slabs. This will include installation of new abutments behind the old abutments, concrete pouring and curing, excavation of fill material between the old and new abutments,

removal of the old abutments, excavation of toe trench, placement of rip rap toe, placement of rip rap bank stabilization. Once substructure construction for Stage I is completed, the detour slabs will be shifted and Stage II construction will occur on the other 2/3 of the bridge. The same activities will be conducted for Stage II. In Stage III, the temporary slabs will be removed and bridge construction will be completed (including work on the end walls). Concrete pouring and curing is required at Stages I and II.

ODOT has requested an eight week in-water work period to ensure that the contractor has sufficient time to complete the work. The existing ODFW in-water work period is ordinarily four weeks, from July 15 - August 15. The four week extension has been proposed for the end of the period, from August 16 - September 15. ODFW preferred this extension because extending at the early part of the period would be more disruptive to steelhead spawning, which will be complete by early July. They also preferred this one-year in-water work period as opposed to the only other alternative, which was to conduct the work during the original four week period, but over two years. A two year construction schedule would involve greater overall aquatic and habitat impacts because the same areas would be disturbed twice rather than once, and because of the increased potential for erosion on the temporarily stabilized banks between work periods.

The original BA, dated June 19, 2000 and received on June 26, further describes work that would be conducted in-water, including work area isolation activities. The project component that has been changed from what is originally described in the BA is the in-stream work area isolation. Based on further review of possible work area isolation methods and the actual limited amount of work within the stream channel, ODOT has determined that isolation is not feasible. Most of the work on the stream banks will be behind the existing abutments, where the existing abutments will act as a physical barrier between the actively flowing stream and earthwork. The installation of an isolation barrier for each of those short periods of work would create more of an impact to fish resources than the actual work. Securing the isolation barriers in the actively flowing channel would involve substantial impacts to the streambed and the banks due to the very narrow stream, steep banks, s-shaped curve in the stream at each bridge, and high bedrock at the project site.

Since there is no practical detour around the project location, the bridges will need to remain open to provide a minimum of one lane of traffic at all times. The new concrete pilecaps will be overbuilt for placement of temporary slabs to provide minimum width for a single-lane detour during project construction. Once the substructure work is completed, the temporary slabs will be shifted to the final alignment. Staged construction will eliminate the need for a separate detour structure and will minimize impacts to the existing vegetation. Equipment staging will be conducted from existing shoulders and wide spots within the project area, all of which are located in upland areas and are at least 500 feet from each bridge. No new staging areas are anticipated to have to be cleared of vegetation.

A summary of the construction activities is provided below. Temporary erosion control measures will be installed for all stages prior to Stage I construction. The contractor will prepare a final erosion control plan that will incorporate applicable conservation measures.

Stage I

Erosion control measures will be implemented prior to any ground disturbing activities. Silt fences, secured with sand bags and/or erosion control fabric, will be used to prevent erosion of upland soils and loss of construction debris into the stream. Sediment barriers will be installed in the roadside ditches where the potential exists for sediment to be washed from adjacent upland areas. The in-stream work area will be isolated from the active flowing channel with a possible combination of sand bags, hay bales, and plastic sheeting.

The temporary concrete slab detour bridge will be installed at Stage 1. Traffic will be redirected onto this single lane during construction on the remaining two-thirds of the structure. The existing asphalt roadway, abutments, spread-footings, timber lagging, concrete, and rip rap will be removed. Access for removal of the bridge and construction of the new bridge will be from the top of the road and bridge. The existing support structures will be removed, at least below the low-water level. Larger sections of the structures will be removed by a crane, while limiting, to the extent practicable, the material entering the channel. Portions of the old support structure below the cut-off point may be left in place, depending upon the condition and design of the footings. Any work below the two-year floodplain will be done by hand or by equipment positioned above the two-year floodplain elevation. No equipment will be placed in water or below the two-year floodplain.

End bents for the bridge will be removed, new abutments will be formed and poured, backfilled with rip rap, and concrete slabs installed. Concrete end panels will be constructed. If temporary shoring is required, it will be constructed of untreated timber or sand bags.

Stage II

The temporary concrete slab detour bridge will be moved for construction on the remaining two-thirds of the bridge, and traffic will be redirected. Essentially the same activities will be conducted for construction on the other side of the bridge. The remaining portion of the old abutments will be removed, new abutments formed and poured, and concrete slabs installed. The creosote treated material will be removed and disposed of using methods that conform to state and federal requirements, as described in the Pollution Control Plan (PCP).

Stage III

The temporary concrete slab adjacent to the exterior slab will be removed. The exterior slab, with integral Type 'F' Rail, will be moved to its final position. Construction of concrete end panels will be completed. The containment facility will be removed after all in-stream work is completed. Erosion control measures will remain in place until all work on adjacent uplands is completed and the site has been revegetated or otherwise stabilized, as per the final erosion control plan to be prepared by the contractor.

The ODFW preferred in-water work period for Little Sheep Creek is July 15 – August 15.

A one month extension of this in-water work period has been approved by ODFW. The one-month extension is necessary primarily because additional construction information indicates that the one-month in-water work period was insufficient for project staging and concrete curing times (the time between concrete pouring and when the concrete reaches specific strengths). At least six weeks is needed to provide sufficient time for project construction and concrete curing for each stage of construction. No detour other than the single-lane onsite detour is available in this remote and narrow valley. As such, the bridges must be removed and constructed in stages. The only time that work will be conducted in the stream is when the existing abutments are removed, the toe trench is excavated, and the rip rap toe is placed. This will take at most two days per stage, with approximately six weeks between the two stages. Therefore, actual work within the actively flowing stream for both bridges will take place intermittently over the eight week in-water work period, for a total of approximately eight work days.

## 3. BIOLOGICAL INFORMATION AND CRITICAL HABITAT

The Snake River steelhead Evolutionarily Significant Unit (ESU) was listed as threatened on August 18, 1997 (62 FR43937) and Snake River spring/summer chinook salmon ESU was listed as threatened on April 22, 1992 (57 FR 14653). Biological information for Snake River steelhead is found in Busby et al. (1996) and that for Snake River spring/summer chinook in Mathews and Waples (1991) and is summarized in Myers et al. (1998). Recent counts of upstream migration of both species, done at Lower Granite Dam, show at least some short-term improvement in the levels of adults returning to spawn. The Imnaha is one of five principal subbasins in the Snake River drainage that contributes to salmon and steelhead production.

Critical habitat for Snake River spring/summer chinook was designated on December 28, 1993 (58 FR 68543), and critical habitat for Snake River steelhead was designated on February 16, 2000 (65 FR 7764). Critical habitat for Snake River salmon and steelhead encompasses the major Columbia River tributaries known to support this ESU, including the Salmon, Grande Ronde, Imnaha, Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima Rivers, as well as the Columbia River and estuary. Critical habitat consists of all waterways below long-standing (more than 100 years duration), naturally impassable barriers, and therefore includes the project area. The adjacent riparian zone is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter. Protective regulations for Snake River steelhead and Snake River spring/summer chinook were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423).

## 4. EVALUATING PROPOSED ACTIONS

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical

habitat. This analysis involves the initial steps of: (1) Defining the biological requirements and current status of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult migration, spawning, and rearing of the Snake River spring/summer salmon and steelhead under the existing environmental baseline. NMFS' Essential Fish Habitat (EFH) analysis considers the effects of proposed actions on EFH and associated species and their life history stages, including cumulative effects and the magnitude of such effects.

### 4.1. Biological Requirements

The first step in the methods the NMFS uses for applying the ESA section 7(a)(2) to listed salmon and steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list Snake River salmon and steelhead for ESA protection, and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for Snake River spring/summer chinook salmon and Snake River steelhead to survive and recover to naturally reproducing population levels at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this

consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

The current status of Snake River spring/summer chinook salmon ESU has improved since being listed in 1992. In 1994 the species was proposed for listing as endangered due to very low numbers of adults observed at Lower Granite Dam on the lower Snake River. However, an improvement in the adult return levels seen in 1997 prompted the withdrawal of the proposed rule in 1998. Recent returns show continuing improvements in adult returns, at least for some portions of the ESU. The counts at Lower Granite for spring/summer chinook were 14,320 in 1998, 6,556 in 1999, and 37,755 in 2000. The Big Sheep population of spring/summer chinook salmon contributes very little to the health of the ESU due to low numbers of adults spawning in the watershed. Overall, the Imnaha watershed contributes about 10% to the annual escapement of wild Snake River spring/summer chinook salmon. A nearby population, downstream in Asotin Creek which flows into the Imnaha, was recently extirpated.

Information on the life history and status of wild chinook in Little Sheep Creek is not as well-developed as that for hatchery fish. ODFW biologist Bill Knox was contacted for local information. Snake River spring/summer chinook use small, higher elevation streams for spawning and early juvenile rearing. They migrate swiftly to sea as yearling smolts. The returning adult spring-run chinook reach the Snake River in April, whereas returning summer-run adult chinook reach the Snake River in July. Peak spawning for both spring and summer chinook is in the fall (mid August through September). The Imnaha River Basin contains spring and summer runs. Populations from this ESU migrate to the ocean as yearlings, mature at ages 4 and 5, and are rarely taken in ocean fisheries. According to Bill Knox, the only use of Little Sheep Creek by chinook is in the lower reaches (near the project area), and only for rearing. Very few juveniles (less than 20), and no adults, have been observed in Little Sheep Creek. High water temperatures and low water levels prevent Little Sheep Creek from being suitable chinook spawning habitat. In the Imnaha Basin, spring and summer chinook spawn in Big Sheep Creek, about 8 miles above the mouth of Little Sheep Creek, and in the Imnaha River above Freeze Out Creek (Knox, personal communication to Melinda Trask, April 18,2000).

Hatchery production of chinook salmon in the Snake River system is high. Several different stocks have been imported into the Grand Ronde subbasin over the past 20 years. Adult chinook trapped in the Imnaha Basin are reared in the Wallowa Hatchery. Additional Imnaha stocks, produced at the Big Canyon Facilities, are reared in the Lookingglass Hatchery (located on Lookingglass Creek, near the Grande Ronde River). It is reported that Imnaha stock are kept separate from Grande Ronde stock and outplanted into their respective river systems, although some Imnaha stock were released into the Lookingglass River in the past. Matthews and Waples (1991) reported that Imnaha River stock raised at Lookingglass Hatchery have had minimal exotic influence because the fish are released back into their native stream. Furthermore, only two small releases of nonindigenous fish have occurred in the Imnaha River subbasin. ODFW Biologist Brad Smith reported that the Nez Perce Indians introduced spring chinook into Little Sheep Creek in 1993, but that they have not returned to the area.

Low numbers of chinook may be present in the project area for rearing, although their presence will be

limited during the high summer temperatures. However, there are many springs in the area that may reduce the temperature in resting areas, and temperatures are drastically reduced in the evenings. Chinook are not known to spawn in Little Sheep Creek due to high fall temperatures.

The Imnaha River spring/summer chinook stocks have been identified at moderate extinction risk, primarily due to habitat degradation and disruption of migration corridors. The abundance of naturally-spawning chinook in this ESU has drastically decreased from historical population sizes of more than 1.5 million adults. The average population size between 1992 and 1996 was 3,280 naturally-produced spawners (based on counts at Lower Granite Dam on the Snake River). The most significant barriers to chinook presence in the Imnaha System are the many dams along the Columbia and Snake rivers that greatly inhibit migration. Other significant factors involved with habitat degradation include high water temperatures, lack of pools, low flows, poor overwintering conditions, and high sediment loads.

Snake River steelhead, listed in 1997, have shown some recent improvement, although the data for wild fish are insufficient to draw any conclusions about trends. During 1990 - 1995 the percentage of wild origin steelhead migrating above Lower Granite dam averaged 14% of the total run; the majority of steelhead in the Snake River system are of hatchery origin. A local hatchery program in the Little Sheep Creek watershed utilizes wild native steelhead for broodstock, releasing the offspring to Little Sheep Creek (Knox, personal communication, April 18, 2000). Data for the past 10 years indicate that the hatchery origin steelhead continue to outnumber the wild fish. About 20% of the steelhead in the watershed are native, wild fish; in 1999, between 40 and 50 wild steelhead were observed in Little Sheep Creek.

Adult steelhead move into the Imnaha system from February through May. They spawn in Little Sheep Creek from April through May, emerging after about 60 days (Bill Knox, personal. communication to Melinda Trask, April 18, 2000). Juveniles are present all year, but are likely to move to cool water refugias during the warm summer months. There are many springs in the project vicinity that provide cold water resting areas. Hatchery fish are widespread in the Snake River steelhead ESU. They escape to spawn naturally throughout the region. In the past 10 years, hatchery returns have ranged from 140 to 1200 fish per year, while wild returns have ranged from 10 to 130 fish per year.

NMFS concluded that the Snake River steelhead are not presently in danger of extinction, but likely to become extinct in the foreseeable future (NOAA 1996). This is primarily due to the declining abundance of natural runs. As with chinook salmon, the most significant barriers to steelhead presence in the Imnaha System are the many dams along the Columbia and Snake rivers that greatly inhibit migration. Possible genetic introgression from hatchery stocks is another threat. NMFS is also concerned about the degradation of freshwater habitats within the region, especially the impact of grazing, irrigation diversions, and hydroelectric dams on steelhead. However, the evaluation of threats to Snake River steelhead is clouded by uncertainty around population sizes, degree of interaction between hatchery and natural stock, and relationships between anadromous and resident forms of steelhead.

### 4.2 Environmental Baseline

The current range-wide status of the identified ESUs may be found in Busby et al. (1996) and Myers et al. (1998). The identified action will occur within the range of Snake River steelhead and Snake River spring/summer chinook. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions, contributing to stream degradation. As such, the action area for the proposed activities include the immediate portions of the watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and riparian habitat of Little Sheep Creek, 100 feet upstream from the second bridge site (mile point 14.5), and 200 feet downstream from the first bridge site (mile point 13.6).

The project is within the Little Sheep Creek watershed of the Imnaha River basin. Little Sheep Creek flows into Big Sheep Creek three miles downstream of the project area. About 15 miles down from this confluence, Big Sheep Creek flows into the Imnaha River, very near the town of Imnaha in eastern Wallowa County. The project area is located just above the confluence of Hayden Creek with Little Sheep Creek.

The Imnaha River is a tributary to the Snake River. The Imnaha watershed is within the Blue Mountains Province of eastern Oregon. Geologically, landforms of the Imnaha and Snake River drainages are relatively old and highly eroded. The eastern portion of the Snake River Basin flows out of the granitic geological unit known as the Idaho Batholith, while the western Snake River Basin drains sedimentary and volcanic soils of the Blue Mountains complex.

The project area is characterized by steeply-sloping, rocky hillsides with shrub-steppe vegetation and a well-established riparian zone along Little Sheep Creek. The creek basin is steep and v-shaped in the narrow valley floor. The stream channel is approximately seven feet wide and 1.6 feet deep at the ordinary high water mark. The adjacent riparian zone varies from zero to approximately ten feet wide along both banks. Where the riparian zone is non-existent, the stream is confined by natural rock walls. Both hill-slope and road-fill types of land forms are found adjacent to the stream channel. The land use is agricultural, primarily cattle grazing, and is mostly in private ownership.

Livestock grazing has persisted in the region since the early 1700s when the Nez Perce used the valleys to pasture horses (Buchanan et al. 1997). Although early settlers grazed sheep, cattle, and horses in the watershed, more recently it has been limited to primarily cattle. Some land owners use the creek and floodplains extensively as pasture, while others have excluded the flood zone from frequent grazing, either through fencing or rotation practices. Within the project area, it was evident that cattle have access to the stream. The presence of hoof prints, dung, and browsed vegetation indicate heavy grazing pressure in the project area. More severe grazing pressure was observed on the parcel immediately downstream of Bridge #2 (as evidenced by minimal shrub cover, low herbaceous growth,

and eroded banks). Adjacent upland hills also displayed evidence of heavy to moderate grazing pressure.

Within the project area, the riparian zone contains a range of vegetation types, from herbaceous wetlands to deciduous forest. Streamside vegetation cover was moderate to high near each bridge, except along the west bank just above the second bridge where roadside stabilization efforts have resulted in an approximate 100-foot-long rip rap filled bank. The widest riparian zone in the project area is found on the western bank, just upstream of the first bridge, where there is a low cover of shrubs and a herbaceous wetland understory. Woody species in this area and elsewhere in the project area include thinleaf alder (*Alnus incana*), Scouler's willow *(Salix scouleriana*), snow gooseberry (*Ribes niveum*), black hawthorne (*Crataegus douglasii*), wild rose (*Rosa woodsii*), elderberry (*Sambucus* sp.), and chokecherry (*Prunus virginiana* var. *melanocarpa*). The herbaceous understory is dominated by perennial grasses, including Kentucky bluegrass (*Poa pratensis*) and orchard grass (*Dactylis glomerata*); sedge (*Carex* sp.), creeping buttercup (*Ranunculs repens*), dandelion (*Taraxacum officinale*), rush (*Juncus* sp.), horsetail (*Equisetum* sp.), aspergo (*Aspergo procumbens*), bedstraw (*Galium* sp.), and teasel (*Dipsacus sylvestris*). The riparian zone on either side of the second bridge contains the following trees in addition to the shrubs listed above: water birch *(Betula occidentalis*), white alder (*Alnus rhombifolia*), and willow (*Salix* sp.).

The adjacent hillsides are rocky with very shallow soil. They are dominated by non-native herbaceous species, including the following: Ambrosia (*Ambrosia artemisifolia*), teasel, woolly mullein (*Verbascum thapsus*), common catchfly (*Silene vulgaris*), yellow salsify (*Tragopogon dubuis*), bull thistle (*Cirsium vulgare*), common hound's-tongue (*Cynoglossum officinale*), hairy falseflax *(Camelina microcarpa*), evening campion (*Lychnis alba*), and cheat grass (*Bromus tectorum*). A small proportion of native plants also occur in this community, including bluebunch wheatgrass (*Agropyron spicatum*), Sandberg's bluegrasses (*Poa secunda*), yarrow (*Achillea millefolium*), scarlet burglar (*Pensetmon globosus*), spurred lupine (*Lupinus laxiflorus),* and stinging nettle (*Urtica dioica*).

The highway follows along the narrow valley for the entire length of Little Sheep Creek. Since the valley is so narrow, natural creek sinuosity is low, and has been further confined by the presence of the highway. The creek contains S-shaped curves at each of the project bridge crossings, which were created when the bridges were originally installed to provide for perpendicular crossings. As a result, severe bank souring is prevalent downstream of each bridge, threatening the stability of the bridges. Portions of the Little Sheep Creek are channelized and the roadway banks function as the streambank. In such areas, erosion is prevalent. However, most of the stream reach within the project area is not highly eroded nor incised, probably because of the high bedrock.

Other anthropogenic disturbances in the watershed include surface water diversion into canals, dams for hydroelectric development and irrigation, and timber harvesting. The Wallowa Valley Improvement (WVI) Canal, constructed in the late 1800s, diverts water from the upper reaches of Big Sheep Creek, Little Sheep Creek, and several of its tributaries. These diversions are not screened. Screening was considered by ODFW, but rejected due to risk of icing up in the winter and potential spill problems

(Buchanan et al. 1997). The network of canals, dams, and other diversions associated with the WVI Canal is extensive, resulting in drastic alteration of the natural hydrology in Little Sheep Creek (refer to Buchannan et al. 1997, for details). These diversions prevent migration of fish into the upper reaches of Little Sheep Creek, approximately 10 miles above the project area. The hydroelectric dam in Little Sheep Creek was removed in 1997. Currently, withdrawals from the WVI Canal have been minimized to only that required for irrigation purposes. Several springs below the Canal supply Little Sheep Creek with continuous flows.

The substrate in Little Sheep Creek varies from bedrock to cobbles to gravel, but fine sediments are limited to only those areas with heavy livestock grazing within the channel. Pools and refugia are limited due to the constricted channel morphology. The only pool observed in the project area was downstream of the second bridge at the outside of the S-shaped curve. No large woody debris was observed, and forested vegetation is absent from all but the upper reaches of the watershed, many miles above the project area. The temperatures in Little Sheep Creek are high during the summer. This is primarily due to an overall lack of riparian cover throughout the system. The portions of the stream directly adjacent to the project bridges have moderate to good riparian cover. However, other portions of the project reach are devoid of woody vegetation, primarily due to erosion caused by overgrazing. The Little Sheep Creek, which includes the project site, is not currently listed by the Oregon Department of Environmental Quality (DEQ) under the Clean Water Act's Section 303(d), *List of Water Quality Limited Water Bodies*. However, Big Sheep Creek (mouth to Owl Creek) and the Imnaha River (mouth to Summit Creek) are currently listed. Both have temperature cited as the water quality problem, although that reach of Big Sheep Creek is also designated on the 303(d) list for habitat modification (DEQ 1999).

Based on the best available information on the current status of Snake River spring/summer chinook and steelhead range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area (as described in the BA), NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. Numbers of both chinook and steelhead are substantially below historic numbers. Recovery trends show no clear pattern due to lack of long-term data. Degraded freshwater habitat conditions, which include the effects of grazing and unscreened diversions, have contributed to the decline.

The NMFS Matrix of Pathways and Indicators (NMFS 1996) was used to assess the current condition of various steelhead and salmon habitat parameters. Use of the Matrix identified the following habitat indicators as either at risk or not properly functioning within the action area: Water temperatures, turbidity/sediment, substrate, large woody debris, pool frequency and quality, off-channel habitat, refugia, streambank condition, floodplain connectivity, peak/base flows, drainage network increase, and disturbance history and regime. Actions that do not maintain or restore properly functioning aquatic habitat conditions have the potential to jeopardize the continued existence of Snake River chinook salmon and steelhead.

## 5. ANALYSIS OF EFFECTS

## 5.1. Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document, *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of proposed actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area.

The proposed action has the potential to cause the following impacts to threatened Snake River chinook salmon and Snake River steelhead or designated critical habitat:

1. In-water work may cause direct adverse impacts to any juvenile steelhead that may be present near the work site.

The construction activity has the potential to directly harm steelhead due to handling or otherwise disturbing rearing juveniles. Placement of riprap (new or additional placement) up the embankment may alter fish rearing and migration behavior. The potential exists for changes in channel conditions and dynamics following the placement of riprap.

Other adverse impacts include sedimentation and increased turbidity caused by the in-water work; this may result in minor siltation of downstream spawning gravels.

2. Riparian function will be impaired, causing indirect adverse impacts to steelhead.

Placement of riprap will result in the permanent loss of 137 square yards of natural stream embankment. This will result in a short-term loss of primary production and temporary bank instability. There will be a net increase in impervious surfaces of 800 square yards; this will be offset, however, by the improvements in stormwater runoff.

The effects of these activities on Snake River chinook salmon and steelhead and aquatic habitat factors will be limited by implementing construction methods and approaches that are included in project design and intended to avoid or minimize impacts. These include:

1. All in-water work will be conducted during the ODFW-approved in-water work period of July 15 to September 15. This will avoid impacts to migrating adult steelhead.

2. Alteration and disturbance of stream banks and existing riparian vegetation will be minimized to the extent possible. When working within the two-year floodplain, bank protection material will be placed to maintain normal waterway configuration.

3. ODOT will minimize the amount of riprap used, and place only clean, non-erodible, upland angular rock of sufficient size to ensure long-term armoring. Within the two year floodplain, larger riprap will be used judiciously so that the size of the active channel will not be constricted.

4. Riparian habitat will be protected by flagging the areas to be cleared prior to construction. Areas outside of the flagged zone will not be impacted.

5. Native vegetation will be maintained wherever possible. Shrubs and trees will be removed by clipping at ground level, and not grubbed out of the soil. Invasive exotic species will not be protected.

6. Riparian vegetation will be replaced at a rate of 1.5:1. All disturbed riparian areas in the project vicinity will be replanted with native vegetation.

For the proposed action, the NMFS expects that the effects of the proposed project will tend to maintain each of the habitat elements over the long term, greater than two years. However, in the short term, a temporary increase in sediment entrainment and turbidity, and disturbance of riparian and in-stream habitat is expected. Fish may be killed or temporarily displaced during the in-water work. However, the removal of creosote treated timbers currently in use, and the improved drainage, are expected to provide long-term benefits to fish and other aquatic species. The potential net effect from the proposed action, including proposed plantings, is expected to be the maintenance and restoration of functional salmon and steelhead habitat conditions.

### 5.2. Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for Snake River chinook salmon and steelhead consists of all waterways below naturally impassable barriers, which includes the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, input of large woody debris or organic matter, and others.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project site and watershed scales. The results of this evaluation, based on the "matrix of pathways and indicators" (MPI) described in *"Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale"* (NMFS 1996), are detailed above. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species and assesses the constituent elements of critical habitat. An assessment of the essential features of Snake

River chinook salmon and steelhead critical habitat is obtained by using the MPI process to evaluate whether aquatic habitat is properly functioning.

The proposed actions will affect critical habitat. In the short term, a temporary increase of sediments and turbidity and disturbance of riparian and in-stream habitat is expected. In the long term, a net improvement of habitat will occur because the bridge design will improve passage, and the drainage improvements will reduce the input of toxicants coming off of the roads during precipitation. Consequently, NMFS does not expect that the net effect of this action will diminish the long-term value of the habitat for survival of Snake River chinook salmon and steelhead.

### 5.3. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area is defined as the streambed and riparian habitat of Little Sheep Creek throughout the action area. The action area extends 100 feet upstream of the project site, and 200 feet downstream. The project actions consist of repairing two bridges, and are detailed in the project description section above. NMFS is not aware of any significant change in non-Federal activities that are reasonably certain to occur within the action area. NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Future FHWA/ODOT transportation projects are planned in the Imnaha watershed. Each of these projects will be reviewed through separate section 7 consultations and are not considered cumulative effects of this project.

## 6. CONCLUSION

NMFS has determined based on the available information, that the proposed action will not destroy or adversely modify critical habitat over the long term. As such, the proposed action covered in this Opinion is not likely to jeopardize the continued existence of Snake River salmon and steelhead. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment impacts, in-water construction, and habitat loss. These effects will be mitigated over the long-term through the implementation of proposed plantings and improved fish passage at the bridges. Direct mortality of juvenile steelhead may occur during the in-water work period of project activities, and there may be some disturbance to adult migrating salmon and steelhead during the latter period of construction (from August 15 to September 15).

## 7. REINITIATION OF CONSULTATION

Consultation must be reinitiated if: 1) The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; 2) new information reveals effects of the action may affect listed species in a way not previously considered; 3) the action is modified in a way that causes an effect on listed species that was not previously considered; or, 4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To re-initiate consultation, ODOT must contact the Habitat Conservation Division (Oregon Branch Office) of NMFS.

## 8. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

### 8.1. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of Snake River chinook salmon and steelhead because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct incidental take during in-water work (lethal and non-lethal). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on chinook salmon and steelhead habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the two species. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the biological assessment, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to within the area of project disturbance, extending 100 feet upstream and 500 feet downstream of the project area.

## 8.2. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. To minimize the amount and extent of incidental take from in-water construction activities at the Little Sheep Creek bridges, measures shall be taken to limit the duration and extent of in-water work, and to time such work when the impacts to Snake River chinook salmon and steelhead are minimized.

2. To minimize the amount and extent of incidental take from construction activities in or near the creeks, effective erosion and pollution control measures shall be developed and implemented throughout the area of disturbance. The measures shall minimize the movement of soils and sediment both into and within the river, and will stabilize bare soil over both the short term and long term.

3. To minimize the amount and extent of take from loss of in-stream habitat and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian and in-stream habitat, or where impacts are unavoidable, to replace or restore lost riparian and in-stream function.

4. To ensure effectiveness of implementation of the reasonable and prudent measures, all erosion control measures and plantings for site restoration shall be monitored and evaluated both during and following construction, and meet criteria as described below in the terms and conditions.

## 8.3. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, FHWA/ODOT must comply with the following terms and conditions, which will implement the reasonable and prudent measures described above. These terms and conditions should be incorporated into construction contracts and subcontracts to ensure that the work is carried out in the manner prescribed. Implementation of the terms and conditions within this Opinion will further reduce the risk of impacts to fish and Little Sheep Creek habitat. These terms and conditions are non-discretionary.

1. In-water work: during the period of in-water work, an ODOT project inspector shall monitor construction activities periodically to ensure that the following terms and conditions are met.

    a. Passage shall be provided for both adult and juvenile forms of all salmonid species throughout the construction period. The FHWA/ODOT designs will ensure passage of fish as per ORS 498.268 and ORS 509.605 (Oregon's fish passage guidance).

b. All work within the active channel of Little Sheep Creek will be completed within the ODFW-approved in-water work period (July 15 to September 15). Any adjustments to the in-water work period will first be approved by, and coordinated with, NMFS and ODFW

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c. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration whenever possible.

d. During ODOT project design, ODOT will work to minimize the amount of riprap used. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term armoring will be employed. Placement will be from above the bank line and not "end-dumped."

e. The diversion or withdrawal of all water used for construction or for riparian plantings will comply with all state and federal laws, particularly those that require a temporary water right and screening of intakes. The FHWA/ODOT shall be responsible for informing all contractors of their obligations to comply with existing, applicable statutes.

f. At least one week prior to the start of work in the active flowing stream (removal of existing abutments, excavation of the toe trench, and placement of riprap), the ODOT project inspector shall notify the ODOT Regional Environmental Coordinator (REC) of the expected date of construction. The ODOT REC shall then notify NMFS.

2. Erosion and Pollution Control

An Erosion Control Plan (ECP) will be prepared by ODOT or the contractor, and implemented by the contractor. The ECP will outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures shall be sufficient to ensure compliance with applicable water quality standards and this Opinion. The ECP shall be maintained on site and shall be available for review upon request.

a. Effective erosion control measures shall be in-place at all times during the contract. Construction within the five-year floodplain will not begin until all temporary erosion controls (e.g., straw bales, silt fences, or other methods) are in place within the riparian area. Erosion control structures will be maintained throughout the life of the contract.

i. Erosion control blankets or heavy duty matting (e.g., jute) may be used on steep unstable slopes in conjunction with seeding, or prior to seeding.

ii. Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work on exposed slopes.

b. All exposed areas will be replanted with native vegetation. Erosion control planting, and placement of erosion control blankets and mats (if applicable) will be completed on all areas of bare soil within seven days of exposure within 150 feet of waterways, wetlands or other sensitive areas, and in all areas during the wet season (after October 1). All other areas will be stabilized within 14 days of exposure. Efforts will be made to cover exposed areas as soon as possible after exposure.

c. All erosion control devices will be inspected throughout the construction period to ensure that they are working adequately. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, and monthly on inactive sites. Work crews will be mobilized to make immediate repairs to the erosion controls, or to install erosion controls during working and off-hours. Should a control measure not function effectively, the control measure will be immediately repaired or replaced. Additional erosion controls will be installed as necessary.

d. In the event that soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.

e. Where feasible, sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters an aquatic resource area.

f. A supply of erosion control materials (e.g., straw bales and clean straw mulch) will be kept on hand to cover small sites that may become bare and to respond to sediment emergencies.

g. All equipment that is used for in-stream work will be cleaned prior to entering the two-year floodplain. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.

h. Material removed during excavation shall only be placed in upland locations where it cannot enter sensitive aquatic habitat. Conservation of topsoil (removal, storage and reuse) will be employed.

i. Measures will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

j. Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D) and DEQ's provisions for maintenance of water quality standards. Toxic substances shall not be introduced above natural background levels in waters of the State in amounts which may be harmful to aquatic life. Any turbidity caused by this project shall

not exceed 10% above background as measured 30 feet downstream of the project, per the NPDES-CA permit.

k. The Contractor will develop and implement an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released. The Contractor will be monitored by the ODOT Engineer to ensure compliance with this PCP. The PCP shall include the following:

   i. A site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, borrow pit operations, haul roads, equipment storage sites, fueling operations and staging areas.
   ii. Methods for confining and removing and disposing of excess construction materials, and measures for equipment washout facilities.
   iii. A spill containment and control plan that includes: notification procedures; specific containment and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.
   iv. Measures to be used to reduce and recycle hazardous and non-hazardous waste generated from the project. This information will include the types of materials, estimated quantity, storage methods, and disposal methods.
   v. The person identified as the Erosion and Pollutant Control Manager (EPCM) shall also be responsible for the management of the contractor's PCP.

l. Areas for fuel storage, refueling and servicing of construction equipment and vehicles will be located above the 10-year floodplain of any waterbody. Overnight storage of non-wheeled vehicles is allowed within the two year floodplain during the in-water work window; however, to minimize the risk of fuel reaching the water, refueling of these vehicles must not occur after 1 pm (so the vehicles do not have full tanks overnight).

m. Hazmat booms will be installed in all aquatic systems where:

   i. Significant in-water work will occur, or where significant work occurs within the 5-year floodplain of the system, or where sediment/toxicant spills are possible.
   ii. The aquatic system can support a boom setup (i.e. the creek is large enough, low-moderate gradient ).

n. Hazmat booms will be maintained on-site in locations where there is potential for a toxic spill into aquatic systems. "Diapering" of vehicles to catch any toxicants (oils, greases, brake fluid) is mandatory when the vehicles have any potential to contribute toxic materials into aquatic systems.

o. No surface application of nitrogen fertilizer will be used within 50 feet of any aquatic resource.

3. Riparian Habitat Protection Measures

a. Boundaries of the vegetation clearing limits will be flagged by the project inspector. Ground will not be disturbed beyond the flagged boundary.

b. Alteration of native vegetation will be minimized. Where possible, native vegetation will be clipped by hand so that roots are left intact. This will reduce erosion while still allowing room to work. No protection will be made of invasive exotic species (e.g. Himalayan blackberry), although no chemical treatment of invasive species will be used.

c. Riparian understory and overstory vegetation will be replaced following the provisions described in the amended Biological Assessment. Woody vegetation will have a replacement rate of l.5:1. Replacement will occur within the project vicinity. Materials will be salvaged from the construction zone or obtained using stock that originates in the Snake River basin, and will include native willow, gooseberry, and black hawthorne.

4. Monitoring

a. Erosion control measures as described above in 2(d) shall be monitored.

b. All significant riparian replant areas will be monitored to insure the following:

i. Finished grade slopes and elevations will perform the appropriate role for which they were designed.
ii. Plantings are performing correctly and have an adequate success rate (success rate depends on the planting density, but the goal is to have a functional riparian vegetation community).

c. Failed plantings and structures will be replaced, if replacement would potentially succeed. If not, plantings at other appropriate locations will be done.

d. A plant establishment period (three year minimum) will be required for all riparian mitigation plantings.

e. By December 31 of the year following the completion of construction, FHWA/ODOT shall submit to NMFS (Oregon Branch) a monitoring report with the results of the monitoring required in terms and conditions (4(a) to 4(c) above).

## 9. ESSENTIAL FISH HABITAT

Public Law 104-267, the Sustainable Fisheries Act of 1996, amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to establish new requirements for "Essential Fish Habitat" (EFH) descriptions in Federal fishery management plans and to require Federal agencies to consult with NMFS on activities that may adversely affect EFH. "Essential Fish Habitat" means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (Magnuson-Stevens Act §3). The Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed Pacific salmon fisheries (PFMC 1999). EFH includes those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery (i.e., properly functioning habitat conditions necessary for the long-term survival of the species through the full range of environmental variation).

The Magnuson-Stevens Act requires consultation for all actions that may adversely affect EFH, and it does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

The proposed designated salmon fishery EFH includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except above the impassable barriers identified by PFMC. Salmon EFH excludes areas upstream of longstanding naturally impassable barriers (i.e., natural waterfalls in existence for several hundred years). The proposed action area encompasses the Council-designated EFH for chinook salmon (*Onchorhynchus tshawytscha*).

The objective of this EFH consultation is to determine whether the proposed action may adversely affect EFH for chinook salmon. Another objective of this EFH consultation is to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse impacts to EFH resulting from the proposed action. Effects of the proposed action are described above. The conservation measures and special provisions described in the Opinion and associated BA are considered adequate to prevent adverse effects on EFH for chinook salmon in Little Sheep Creek.

## 10. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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